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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,252	07/16/2003	Kuo-Feng Chen	67,200-569A	1265

7590

09/08/2004

Randy W. Tung  
Tung & Associates  
Suite 120  
838 W. Long Lake Road  
Bloomfield Hills, MI 48302

EXAMINER
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STINSON, FRANKIE L

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/621,252	Applicant(s) KUO-FENG ET AL. <span style="float: right;">S.C.</span>	
	Examiner FRANKIE L. STINSON	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. in view of Kanno (U. S. Pat. No. 5,934,566)

Re claim 21, Abe is cited disclosing an apparatus comprising:

a wafer jig (see fig. 13) constructed and arranged to carry the semiconductor wafer therein, and wherein the wafer jig includes an opening therein for exposing a top surface of the semiconductor wafer;

a wetting solution connected to a spray module and pump (see col. 5, line 24-28, where pump has been defined by the examiner as "an apparatus or machine for moving or altering the pressure of fluids in confined spaces, as by suction or pressure", Random House College Dictionary, 1980. The pressurized tank is clearly a pump by definition and is clearly the functional equivalent or applicant's pump MPEP 2144.06 **SUBSTITUTING EQUIVALENTS KNOWN FOR THE SAME PURPOSE**) for supplying wetting solution through a spray module and onto a semiconductor wafer carried in the wafer jig and wherein the spray module includes a plurality of spray nozzles (711, 712, 721, 722) that differs from the claim only in the recitation of the wetting solution supply tank, the nozzles constructed and arranged to spray wetting solution having particles less than 100 micrometers and the pre-treating the wafer prior to electroplating. The patent to Kanno is cited disclosing in an apparatus for treating a wafer where there is provided a supply tank (not shown, see

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col. 5, lines 24-28). It therefore would have been obvious to one having ordinary skill in the art to modify the apparatus of Abe, to include a tank for the wetting solution as taught but Kanno, since this arrangement is typical in the art and since Abe disclose that the "whole automatic washing system is disposed within the housing 10" (col. 3, lines 6-100). In regard to the wetting solution having particles less than 100 micrometers. Kanno is again cited disclosing the particle size as claimed. It therefore would have been obvious to include with the spraying means (711, 712, 721 and 722) in Abe, means for providing a wetting solution with particles/droplets (see col. 11, lines 41-45) since Kanno discloses that the solution with particles/droplets provides a more effective wash (col. 11, lines 12-18). As for the intended use of "pre-treating a semiconductor prior to electroplating", the same has not been afforded the effect of a limitation in that it is not necessary to give life, meaning and vitality to the claim and the fails to recite any limitations to limit the apparatus for pre-treating semiconductor prior to electroplating only. Re claims 22 and 23, Abe discloses the spray module and jig movable/reciprocated relative to each other (see Abe col. 11, lines 27- 51). Re claim 24, Abe disclose the robot (60). Re claim 25, Kanno discloses the nozzles as claimed. Re claim 26, to have the nozzles arranged in the nozzles arranged in a set of three is deemed to be an obvious matter of design in that the same is considered to be substituted equivalents in view of the modules as taught by either Abe or Kanno.

3. Applicant's arguments filed July 19, 2004 have been fully considered but they are not persuasive. In regard to the remarks pertaining to the wafer being submerged in an electroplating solution, please note that no claim has been made to the same, and

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the under bump in metallurgy and seed layer is immaterial. The arguments with respect to the Germany'272, Japan'430, Martens, Czaja and Fishkin references are rendered moot in that the same are no longer being applied against the claims. As for Abe spraying ammonia water, the same also sprays pure water (see col. 8, lines 18-28). In regard to the remarks on the Kanno reference, namely that the same uses a pressurized tank, as per the definition as recited in paragraph 2 above, the same can be broadly be defined as a pump. It should also be noted that it was never intended to modify the apparatus of Kanno, but to modify Abe in view of the teachings of Kanno. The rotation feature is could also be described as relative movement between the spray module and holder.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In Laurie, note the reciprocating means.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANKIE L. STINSON whose telephone number is (571) 272-1308. The examiner can normally be reached M-F from 5:30 a.m. to 2:00 p.m. and some Saturdays from 5:30 a.m. to 11:30 a.m.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should be directed to TECHNOLOGY CENTER 1700 (571) 272-1700.

Any inquiry for missing parts of this Office Action (copies of references, pages, forms etc.), contact the TEAM LEADER Ms. Nicol Scott (571) 272-1045.

fls



FRANKIE L. STINSON  
Primary Examiner  
Art Unit 1746